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Req for Recons.

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Cover 11-21-01

In re application of

Takayuki KIFUKU

Appln. No.: 09/286,418

Confirmation No.: Not Yet Assigned

Group Art Unit: 3661

Filed: April 06, 1999

Examiner: Brian J. Broadhead

For: ELECTRIC POWER STEERING SYSTEM

REQUEST FOR RECONSIDERATION

Commissioner for Patents
Washington, D.C. 20231

Sir:

Claims 1-20 are all the claims pending in the application. However, claim 3 is canceled by the Amendment filed September 10, 2001, which is being entered with the concurrently-filed CPA.

Claims 1-20 were rejected in the Final Office Action of June 19, 2001, under 35 U.S.C. § 102(e) as being anticipated by Kifuku et al. (USP 5,740,040). In addition to the remarks included with the September 10, 2001 Amendment in response to the Office Action dated June 19, 2001, please consider the following remarks, which distinguish the present invention over the prior art:

An estimated value of static friction of the steering system is, as set forth in claim 1 of the present invention obtained based on the steering force (steering torque) of a driver. On the contrary, this estimated value of static friction of the steering system can not be obtained from the static friction compensating current means 20 for calculating the static friction compensation current upon extracting the rising edge of ω_{edg}, which is the differentiated value of the motor

angular velocity estimate ω being differentiated through the differential calculation means 19, as disclosed by Embodiment 11 of Kifuku et al.

The "steering force of a driver" of the present invention, which is used for estimation of static friction of the steering system, is independent of the angular velocity of the motor. Thus, the "steering force of a driver" exists, even when a rising edge of the motor angular velocity is not detected. On the contrary, the rising edge of ω_{edg}, which is a differentiated value of estimated motor angular velocity as disclosed by Kifuku et al., vanishes to zero at or near the motor angular velocity of zero.

As clearly shown in Fig. 33 of Kifuku et al., in the region near the motor angular velocity estimate of zero, i.e., the region where the static friction behaves as a main friction predominating over the friction of steering system, Kifuku et al.'s static friction compensating current target If extracted from the motor angular velocity estimate ω vanishes to zero. Thus, the static friction compensating current target If can not compensate the static friction of the steering system.

Summarizing the foregoing, Kufuku et al. disclose static friction compensation through detecting of the rising edge of the motor angular velocity. On the contrary, according to the present invention, the static friction compensation is carried out based on the detected value of the steering force (steering torque) of a driver and this steering force (torque) is independent of the angular velocity of the motor.

In view of the foregoing, claims 1, 2, and 4-20 are now believed to be in form for allowance, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned at the telephone number listed below.

Sughrue
SUGHRUE MION, PLLC

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Applicant hereby petitions for any extension of time which may be required to maintain pendency of this case, and any required fee, except for the Issue Fee, for such extension to be charged to the Deposit Account No. 19-4880.

Respectfully submitted

Cameron W. Beddard
Registration No. 46,545

SUGHRUE MION, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, D.C. 20037-3213
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

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